Southeast Polk
Community School District

Math Curriculum
Grade 7

McDougal Littell Textbook Series

Updated June 2011

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I. Iowa Core

Iowa CORE

Mathematics

November 17, 2010

Mathematics | Grade 7

In Grade 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

(4) Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

Grade 7 Overview

Ratios and Proportional Relationships

- Analyze proportional relationships and use them to solve real-world and mathematical problems.

The Number System

- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Expressions and Equations

- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Geometry

- Draw, construct and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Statistics and Probability

- Use random sampling to draw inferences about a population.
- Draw informal comparative inferences about two populations.
- Investigate chance processes and develop, use, and evaluate probability models.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Ratios and Proportional Relationships **7.RP**

Analyze proportional relationships and use them to solve real-world and mathematical problems.

1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*
2. Recognize and represent proportional relationships between quantities.
    a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
    b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
    c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.*
    d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
3. Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

The Number System **7.NS**

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
    a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*
    b. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
    c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
    d. Apply properties of operations as strategies to add and subtract rational numbers.

2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
    a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
    b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
    c. Apply properties of operations as strategies to multiply and divide rational numbers.
    d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
3. Solve real-world and mathematical problems involving the four operations with rational numbers.[1]

Expressions and Equations **7.EE**

Use properties of operations to generate equivalent expressions.

1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*
4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
    a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*
    b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

Geometry **7.G**

Draw, construct, and describe geometrical figures and describe the relationships between them.

1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
6. Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Statistics and Probability **7.SP**

Use random sampling to draw inferences about a population.

1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Draw informal comparative inferences about two populations.

3. Informally assess the degree of visual overlap of two numerical data distributions with similar variability's, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*
4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*

Investigate chance processes and develop, use, and evaluate probability models.

5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
    a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*
    b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
    a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
    b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.
    c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

II. Best Practices List for the Math Classroom

Components of Effective Mathematics Instruction (K-8)

What I should see in a mathematics classroom:

_____ Mental math activities (5 min. then explain thinking) DAILY

_____ Daily math review (5 min. quickly at the start of class) 2-5 times per week

_____ Concept previews (skill based; intro to the curriculum)

_____ Concept probes (1 problem/concept) every 2-3 days

_____ Concept reviews (use previews again after teaching the skill)

_____ Problem solving tasks - begin and end every unit

_____ Multiple problem solving strategies encouraged

_____ Students interacting via whole group, small group, and/or pairs (students communicating)

_____ Good questions - clarifying, redirecting, summarizing, extending, reflecting (students communicating)

_____ Students sharing solutions (students communicating)

_____ Students justifying answers - orally and/or in writing (students communicating)

_____ Active participation by all students (tracking - move toward heterogeneous grouping; peer help)

_____ High expectations communicated (increase time spent on math; can be done any time during the day)

_____ Assessment incorporated throughout the lesson (white boards, questioning, show answer on hands)

_____ Appropriate mathematics terminology utilized

_____ Manipulatives present and used by students/teacher

_____ Technology present and used by students/teacher

_____ Displays of students' work

_____ Concept wall (reference on wall for kids with disabilities)

_____ Exemplars - Problem solving

_____ Thinking with numbers - assessing basic facts

_____ Estimating - emphasize as much as possible

No touch points - providing manipulatives that can't be taken away; use calculator instead

As provided by Larry Osthus

III. Instructional Plans & Assessments

Grade 7 McDougal Littell Math (Pre-Algebra)

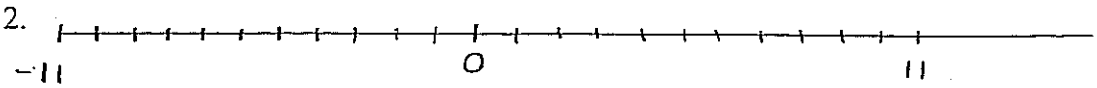
Pacing Guide		*Instructional Plans*		*Common Core*	
Week		*Chapter*	*Sections*	*Standards*	
1	Variables, Expressions, Integers	1	1,2,3	NS.1-3; SP.4	
2		1	4,5		
3		1	6,7		
4		1	8		
5	Solving Equations	2	1,2	NS.2,3; EE.1,4	
6		2	3,4		
7		2	5,6		
8		2	7		
9	Multi-step Equations & Inequalities	3	1,2	NS.1-3; EE.4	
10		3	3,4		
11		3	5,6		
12		3			*End 1st Tri*
13	Rational Numbers & Equations	5	1,2	NS.2,3	
14		5	3,4		
15		5	5,6		
16		5	7		
17	Ratio, Proportion, & Probability	6	1,2,3	G.1; SP.5-8, RP.1	
18		6	4,5,6		
19		6	7,8		
20		6	Scale Drawings		
21	Percents	7	1,2,3	RP.3; EE.2-4	
22		7	4,5,6		
23	**Preview/Review Week**	7			
24	**ITBS Testing**				
25	Linear Functions	8	1,2,3	RP.2	*End 2nd Tri*
26		8	4,5		
27		8	6		
28	Measurement, Area, Volume	10	1,2,3	G.4,6	
29		10	4,5,6		
30		10	7,8		
31	Data Analysis & Probability	11	1,2,3	SP.1-3,8	
32		11	4,5,6		
33		11	7,8,9		
34		11			
35	Angle Relationships & Transformations	13	1,2,3	G.2,5	
36		13	4,5,6		
37		13	7,8		
38		13			*End 3rd Tri*

Weekly Reviews/Previews:
Linear Functions
Measurement, Area, Volume
Data Analysis & Probability
Angle Relationships & Transformations

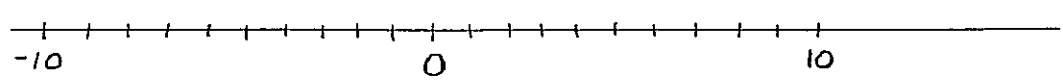
Revised 7/28/11

Chapter 1 Test Name _____
(PA7) **60 points** Class Period _____

1. The integers -5, 10, -3, and -8 represent yards gained or lost by a football team after four downs. Find the sum total. *(2 pts.)* _____

2. 

Use the number line above to represent the sum of -4 + 7 *(2 pts.)*

3. 

Use the number line above to represent the difference of -3 – 2 *(2 pts.)*

Evaluate the following expressions when a = -8 Show work (2 pts.)

4. a - 4 = _____

5. 6 + a = _____

6. A golfer scores +2, or two over par, for round one and -2, or two under par, for round two. He is now at even, or zero, after two rounds of play. Describe another situation where opposite quantities combine to make zero.

Evaluate the following expressions (1 pt.)

7. -25 + 25 = _____

8. -17 + _____ = 0

9. Rewrite the following as an **addition sentence**. -18 – 7 = _____

10. At 6:00 a.m., the temperature was -3°C. By 2:00 p.m., the temperature had risen 15°C. What was the temperature at 2:00 p.m.? *(2 pts.)* _____

11. Find the difference of an elevation of 20 feet below sea level and an elevation of 106 above sea level. *(2 pts.)*_____

Evaluate the following expressions (2 pts.)

12. $15 - 2 \cdot 3 =$ _____

13. $\frac{12 - 4}{2} =$ _____

Evaluate the following expressions when t = 10 (2 pts.)

14. $3t + 5 =$ _____

15. $20 - t \div 2 =$ _____

16. $2(t - 4) =$ _____

17. You own 300 shares of stock in a computer company. If the value of each share increased by $4, how much money did you make or lose? *(3 pts.)* _____

18. You own 150 shares of stock in a utility company. If the value of each share decreased by $2, how much money did you make or lose? *(3 pts.)* _____

19. A MIR submersible is a type of submarine. As a MIR dives, its elevation changes by -100 feet per minute. What would its elevation be after 30 minutes? *(3 pts.)*

20. In the expression **86 ÷ x**, what number can x not represent, and why? *(2 pts.)*

Evaluate the following expressions (1 pt.)

21. $(-4)(-8) =$ _____

22. $-1 \cdot 15 =$ _____

23. $40 / -5 =$ _____

24. $-18 \div (-9) =$ _____

25. The formula for volume of a cube is $V = s^3$. An aquarium has a square base with a side length of 12 inches. Find the volume of the water in the aquarium if you fill it with water to a height of 12 inches. *(3 pts.)*

26. Evaluate the expression m^4 when m = 0.2 *(2 pts.)*

Evaluate each expression when a = -7 and b = 9 (2 pts.)

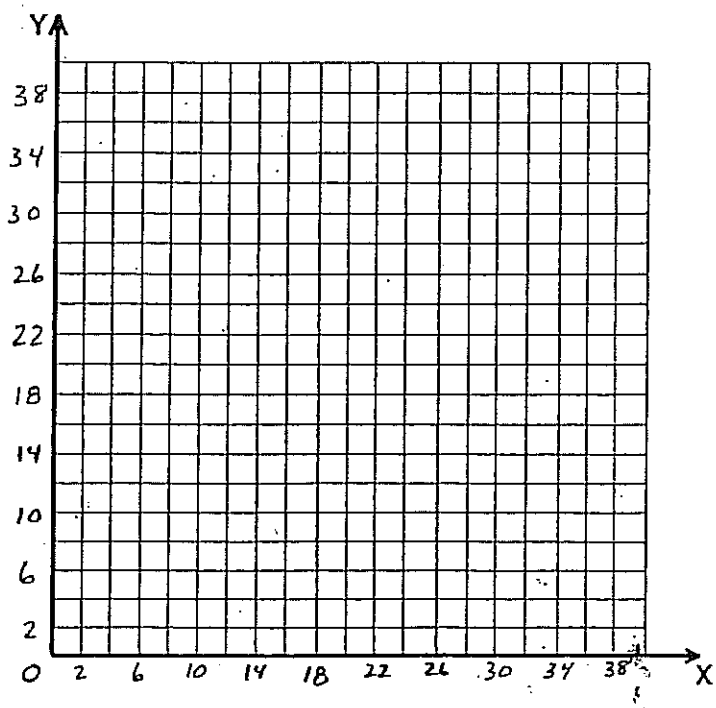
27. |a| + |b|

28. –a + (-b)

29. -|a|

30. The table gives the ages and heights of 9 pine trees. Make a scatter plot of the data. Does it suggest any relationship between the age and height of the trees? Explain. *(5 pts.)*

Age (years)	1	5	10	13	19	23	28	35	39
Height (feet)	2	5	7	13	16	24	32	35	35



Chapter 2 Test Name _____
(PA7) **50 Points** Class Period _____

Show work on all problems! *2 points each (1-work, 1-correct answer)*

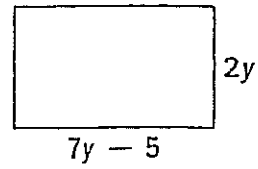
1. During the summer you work 8 hours each day detassling corn and earn $8 an hour. Use properties of multiplication to find how much money you earn during a 5 day work week._____

2. The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?_____

3. A surveyor measures the depth of a river at three different points and obtains depths of 5.8 meters, 9.2 meters, and 7.4 meters. Use properties of addition to find the sum of the surveyor's measurements. _____
What is the mean depth of the river? _____

4. There are two squares. Square A has side lengths of 2 ft. Square B has side lengths of 4 ft. Find the area of each square. A = _____ B = _____
Explain how the areas of the squares are related.

5. A rectangle has side lengths of 2y and 7y - 5. Use the distributive property to find the area of the rectangle.



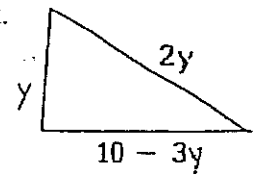
Use the distributive property to simplify

6. $2(z + 8) =$ _____

7. $(5 - a)(-7) =$ _____

8. $-6(3y - 1) =$ _____

9. A triangular garden has sides measuring y, 2y, and 10-3y feet. Find the perimeter of the garden to determine how much fencing will be needed to enclose it.



10. You are making a rectangular blanket. You want the blanket to be three times as long as it is wide. Let w represent the width of the blanket. Write an expression in terms of w for the perimeter of the blanket.

11. In your aquarium, you have angelfish and swordtails. You have a total of 30 fish. If you have x number of angelfish, how many swordtails do you have?

Simplify the following expressions

12. $4k - 10 - k =$ _____

13. $-12 - w + 20 =$ _____

14. $-3(2y - 9) =$ _____

15. $6r - 10(4r - 8) =$ _____

16. The dragonfly's main source of food is the mosquito. A dragonfly can eat as many as 300 mosquitoes in a single day. Write an expression to show how many mosquitoes can be eaten in d days.

17. A company had a total of c employees. The company hired 140 employees, and 62 employees left for other reasons. Write an expression to show how many employees still work at the company.

18. Describe a real-life problem that can be solved using the equation $5x = 40$. Then solve the problem.

19. A rectangular room has a side length of 14 ft and an area of 98 ft². Write and solve an equation to find the width of the room.

Solve the following equations

20. $r + 5 = -1$

21. $8.2 = c - 4.6$

22. $-0.52y = -0.13$

23. $\frac{h}{4} = -16$

Tell whether the given value of the variable is a solution of the equation

24. $16 - u = -4$ when $u = 20$

25. $\frac{w}{-6} = 7$ when $w = 42$

Chapter 3 Test Name _____
(PA7) **50 points** Class Period _____

Show work on all problems! *2 points each (1-work, 1-correct answer)*

1. Your class is raising money for a hunger relief organization. The organization provides farm animals that people can use to produce food. One heifer (a young cow) costs $600, and **each** flock of chicks costs $25. Your class bought one heifer and **c** flocks of chicks. Write an expression to show the total spent.

2. Using your expression from #1, write an equation of how many chicks the class could buy if the amount they spend equals $1000. Then solve.

3. A train consists of 50 cars and one locomotive. The locomotive weighs 150 tons. **Each** car weighs **t** tons. Write an expression to show how much the train weighs in all.

4. Using your expression from #3, write an equation of how much each car weighs if the total weight of the train equals 4650 tons. Then solve.

Solve the equation

5. $40 = 2x - 8$

6. $-4(x - 9) = -8$

7. $\frac{m}{3} + 16 = 20$

8. $19h - 7 = 33 + 14h$

9. $7 + w - 10 = 2w$

10. $30g = 6(5g + 2)$

Write the verbal sentence as an equation.

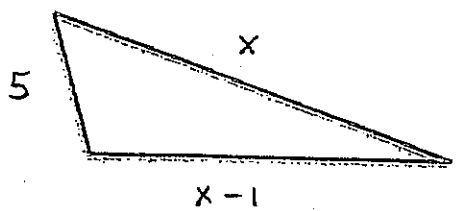
11. The product of 9 and a number plus 17 equals -1.

_____

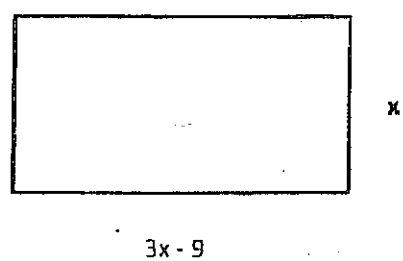
12. Ten plus 6 times a number is equal to 5 less than the number.

_____

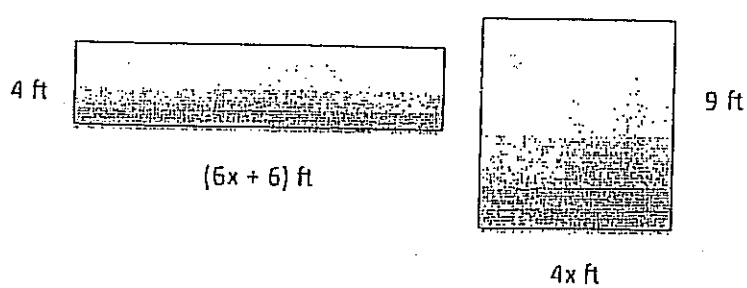
13. A triangular garden has sides of 5 ft., x , and x – 1. If the perimeter of the garden is 24 feet, what does x equal?



14. A rectangular sandbox has a perimeter of 22 feet. The length measures x and the width is 3x-9. What does x equal?

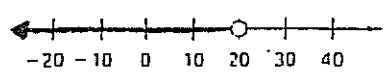


15. Two rugs shown use the same amount of material because they have equal areas. Find the value of x.

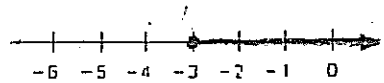


Write an inequality represented by the number line

16. _____



17. _____

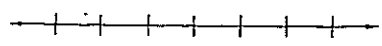


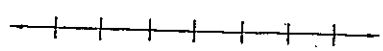
18. A family of four people spends a total of $16 on fishing licenses and **x** amount of dollars on **each** fishing pole. Assuming they buy 4 identical poles, write an expression to show the total amount of money spent.

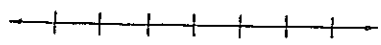
19. Using your expression from #18, write an inequality for what is the most (use $\geq$ or $\leq$) they could spend on each pole if they only had $124? Then solve.

20. As a salesperson at a clothing store, you are paid $50 per week plus $3 **per** sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, then solve.

Solve the inequality. Graph your solution on the number line.

21. $x - 8 > 6$ 

22. $\frac{-t}{2} > -15$ 

23. $2m + 7 \leq 9 + m$ 

Write the verbal sentence as an inequality.

24. Five plus a number is at least 16 _____

25. Six times a number is less than -18 _____

Chapter 5 Test Name _____
(PA7) **50 points** Class Period _____

1. Four fifths of the students wore short sleeved shirts on Monday. Use long division to demonstrate how to write this as a decimal. (*Show work - 2 pts.)*

2. Mr. Smyth's class ordered 5 pizzas. The class ate 4 and 3/8 pizzas. What is this as a decimal? (*Show work - 2 pts.)*

3. What is a rational number? *(1 pt.)*

4. When you convert a rational number to a decimal using long division, what are the two indicators when to stop dividing? *(2 pts.)*

5. You saw 0.45 meters of rope on the ground. What is this as a fraction? *(1 pt.)*

6. The toddler lost 2.013 pounds. (-2.013) What is this as a fraction? *(1 pt.)*

7. You cut 1/6 feet of ribbon and 5/6 feet of ribbon. How much ribbon did you cut in all? *(1 pt.)*

Find the sum or difference. (2 pts.)

8. $\frac{7}{15} - \frac{13}{15}$ _____

9. $10\frac{7}{16} - 2\frac{3}{16}$ _____

Chapter 5 Test
(PA7) pg. 2

Simplify the expression. Show work! (2 pts.)

10. _____ $\frac{-3n}{19} - \frac{4n}{19}$

11. _____ $\frac{26}{15n} + \left(-\frac{8}{15n}\right)$

Simplify the sum or difference. Show work! (3 pts.)

12. _____ $\frac{5}{8} - \frac{3}{4}$

13. _____ $-6\frac{2}{3} - 4\frac{3}{5}$

Evaluate the expression: $y - x$ when $x = \frac{-3}{8}$ and $y = \frac{7}{12}$. *Show work! (2 pts.)*

14. _____

15. You walk every day as part of your exercise regimen. Yesterday, you walked ¾ of a mile, and today you walked 1 ½ miles. What is the total number of miles you walked both days? *Show work! (2 pts.)*

_____

Find the product or quotient. Show work! (3 pts.)

16. _____ $-\frac{4}{5} \cdot \frac{3}{4}$

17. _____ $1\frac{1}{2} \cdot 5\frac{1}{5}$

18. _____ $-\frac{13}{16} \div \left(-\frac{7}{24}\right)$

19. _____ Our rain barrel has a leak. It leaks 2/3 inches of water each day. If it currently holds 6 4/15 inches of water, in how many days will it be empty?

Chapter 5 Test
(PA7) pg. 3

Solve the equation. Show work! (2 pts.)

20. _____ $-\frac{3}{7}c = -6$

21. _____ $\frac{3}{4}w = -\frac{1}{2}$

Solve the equation or inequality. Show work! (3 pts.)

22. _____ $\frac{1}{2}t + \frac{5}{12} = \frac{5}{6}$

23. _____ $\frac{2}{5}k - \frac{4}{15} \geq -\frac{2}{3}$

Chapter 6 Test (Part A) Name _____
(PA7) A=29, B=21 = **50 points** Class Period _____
Sections 1-6
Please show work. (2 pts.)

1. _____ Cecilia typed 186 words in 3 minutes. Calculate the unit rate to determine how many words she can type in one minute.

2. _____ The football team had 28 total wins in 4 seasons during regular season play. Calculate the unit rate of wins per season.

3. _____ If a person walks ½ a mile every ¼ of an hour, calculate the unit rate for miles per hour.

4. _____ If a rocket travels 40 miles per minute, how far can it travel in an hour?

For each of the following set up a proportion, then solve. (3 pts.)

5. At her daughter's birthday party last year, Susan ordered 45 cupcakes for 27 guests. Write and solve a proportion to find the number of guests expected if she is only ordering 15 cupcakes this year.

_____ _____ = _____

6. You know that 3 pizzas are enough to feed 12 people. Write and solve a proportion to find the number of pizzas that will feed 40 people.

_____ _____ = _____

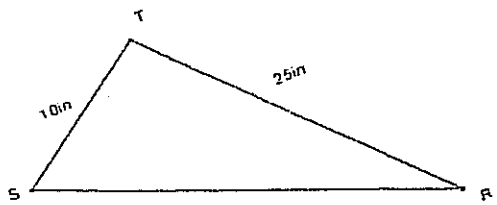
7. You are reading a book. It took you 4 days to read the first 104 pages. If you continue to read at the same rate each day, how many days will it take you to read the remaining 468 pages?

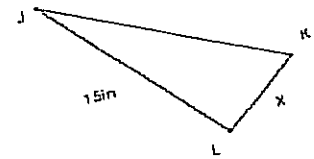
_____ _____ = _____

Chapter 6 Test (Part A)
(PA7) pg. 2

8. Given $\triangle JKL \sim \triangle RST$, find KL *(3 pts.)*

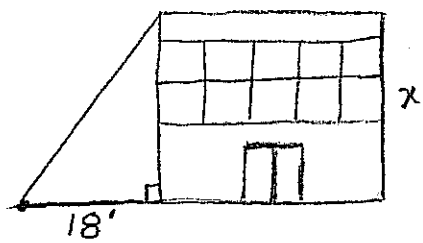
_____ _____ = _____

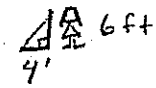




9. A firefighter needs to get to the top of a building, but doesn't know which ladder to use. The building casts a shadow 18 feet long. A woman standing near the building is 6 feet tall and casts a shadow 4 feet long. How tall is the building? *(3 pts.)*

_____ _____ = _____





10. A scale drawing of a basketball court has a scale of 1 inch : 10 feet. The actual basketball court is 94 feet long by 50 feet wide. Compute what the dimensions of the court would be in the scale drawing. Remember to label your answer. *(3 pts.)*

_____ _____ = _____

11. Using the basketball court from #10, find the area of the actual basketball court and the area of the scale drawing. Remember to label your answers. **Explain** what you notice about the relationship between the two measurements. *(3 pts.)*

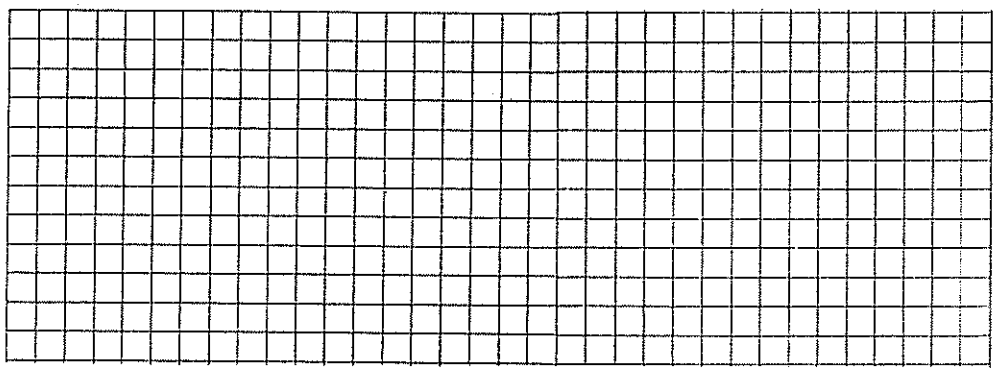
_____Actual area _____Scale drawing area

Explain:

Chapter 6 Test (Part B) Name_____
(PA7) Pg. 3 Class Period_____
Sections 6-8

12. _____A map has a scale of 1 inch : 30 miles. If two towns are 105 miles apart, how far apart will they be on the map? *(1 pt.)*

13. A house's deck is a 15 foot by 12 foot rectangle. Draw a scale model of the deck using the scale 1 cm : 3 feet (Assume each square is 1cm by 1cm) *(2 pts.)*



Use a number between 0 and 1 inclusively to answer the following. (1 pt.)

14. _____If you roll two dice, what is the probability that the sum equals 13?

15. _____If you roll two dice, what is the probability that the sum is greater than one?

16. Describe a real-life situation where the probability is ½.

Miss Henderson's math class has 14 boys and 15 girls. She has a cup of sticks with students' names on them. She pulls a stick to call on a student to share his/her answer.

17. _____What is the probability she will choose a boy's name? *(1 pt.)*

18. _____What is the probability she will choose Karen, who is a girl in the class? *(1 pt.)*

19. Johnny flipped a coin 100 times. The results were Heads 45, Tails 55. What would you predict the results to be after 1000 coin tosses? Why? *(2 pts.)*

Chapter 6 Test (Part B)
(PA7) pg. 4

*Choose between **unlikely**, **likely**, or **neither unlikely or likely** (equally likely)(1 pt.)*

20. _____A man being 8 feet tall.

21. _____A couple's first born child is a girl.

22. _____A flipped coin lands on tails.

23. _____When rolling two dice, the product is less than 40.

24. _____Someone from SE Polk winning the lottery.

25. _____A hat containing the numbers 1-10, you draw out an even number.

26. _____A hat containing the numbers 1-10, you draw out a number greater than 1.

27. A combination lock has 20 numbers on it. To open the lock you need to turn the dial right to the first number, left to the second number, and right to the third number. Use the counting principle to calculate the probability you would choose the correct combination on your first try. *(2 pts.)*

28. You have 6 shirts and 4 pairs of pants. List all possible combinations using a list, table or tree diagram. How many different outfits do you have in all? *(2 pts.)*

Chapter 7 Test
(PA7) 50 pts.

Name _____
Class Period _____

Fill in the chart with the correct fraction, decimal, or percent. Remember to reduce!
(1 pt. each) **You must show work on all problems!!! And labels!!!**

	Fraction	Decimal	Percent
1	$\frac{2}{5}$		
2		0.04	
3			326%

4. _____ What is 40% of 5? *(1 pt.)*

5. _____ What is 180% of 65? *(1 pt.)*

6. _____ Your annual income is $24,000. Last year you spent 22% of your income on rent. How much did you spend on rent last year? *(3 pts.)*

Use a proportion or the percent equation to answer the following. (3 pts.)

7. _____ 5% of 80 students surveyed said their favorite sport is rock climbing. How many students chose rock climbing?

8. _____ The art teacher displayed 90 works of art. 15 were in black and white. What percent were in black and white?

9. _____ 50% of the teachers at Walton Jr. High participated in Backwards Day. 35 teachers participated. How many teachers are at Walton Jr. High?

Identify the percent change as an increase or decrease. Then find the percent of change. (4 pts.)

10._____ _____ The dress originally cost $90 on Monday. Then the price was marked $54 on Friday. By what percent did the cost increase or decrease from Monday to Friday?

11. _____ _____ At 1:20 p.m. the balloon was originally at an elevation of 120 feet. At 2:00 p.m. the balloon's elevation was 144 feet. By what percent did the elevation increase or decrease from 1:20 to 2:00?

12. _____ _____ Each year, your school organizes a carnival to raise money for a class trip. This year, a total of 1026 people attended the carnival. Last year, a total of 950 people attended the carnival. By what percent did the attendance increase or decrease from last year to this year?

Use the given information to find the new amount. (3 pts.)

13. _____ The wholesale price of the Puma tennis shoes was $88. The store had a markup of 50%. Find the new price of the shoes.

14. _____ The original price for the fish bowl was $15. The price was discounted 20%. Find the new price of the fish bowl.

15. _____ The original price of the winter jacket was $200. The sales tax is 6%. Find the total amount paid for the jacket.

16. _____ _____ A family spent $62 on a meal at Applebee's. The waitress was excellent so they left a 20% gratuity. How much gratuity did the waitress receive? How much did the family spend in all? *(4 pts.)*

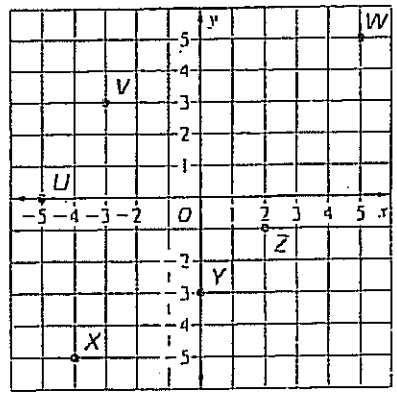
17. _____ _____A salesman earns $1200 a month plus 15% commission on total sales. He sold $500 worth of items in June. How much did he earn on commission? What is the total he earned that month? *(4 pts.)*

18. _____ _____The principal amount Kendra has in savings is $4500. The simple annual interest rate is 4%. If she keeps her money in this account for 15 years, how much will she earn in interest? How much will she have in all? *(4 pts.)*

Chapter 8 Test

Pre-Algebra

Name: _____ Period: _____



1. What point is at (-3,3) ? _____

2. Give the ordered pair for Y _____

3. Identify domain and range of the relation. Then tell if it is a function.

(-2,4) (-1,2) (0,0) (1,2)

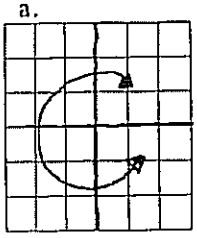
Domain: _____

Range: _____

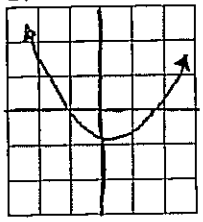
Is it a function? Y/N

4. Which graph is a function (use Vertical Line Test)

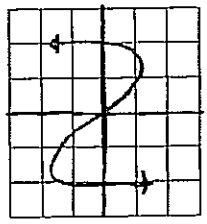
a.



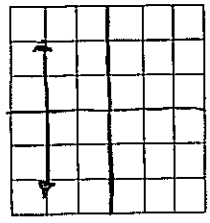
b.



c.



d.



Tell whether the ordered pair is a solution (show work – 2 points)

5. $y = -6x - 14$; (-5,16)

6. $2x - 3y = 7$; (8, -3)

Write the equation in function form: y =

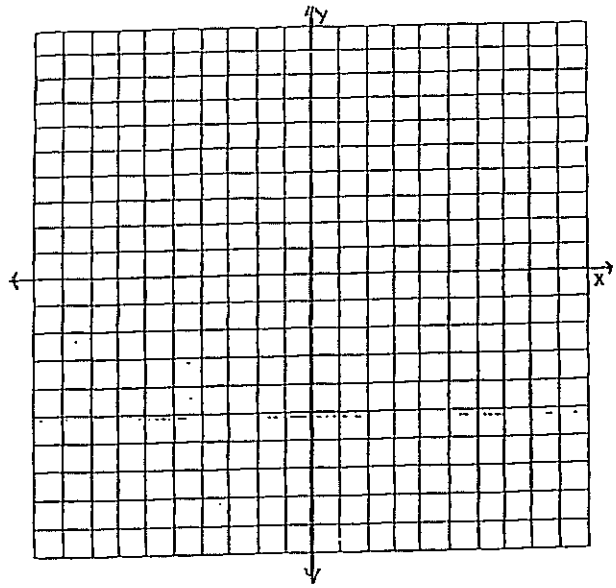
7. $8x + 4y = 20$

Chapter 8 Test
(PA7) pg. 2

Graph using table

8. $y = -3x + 6$

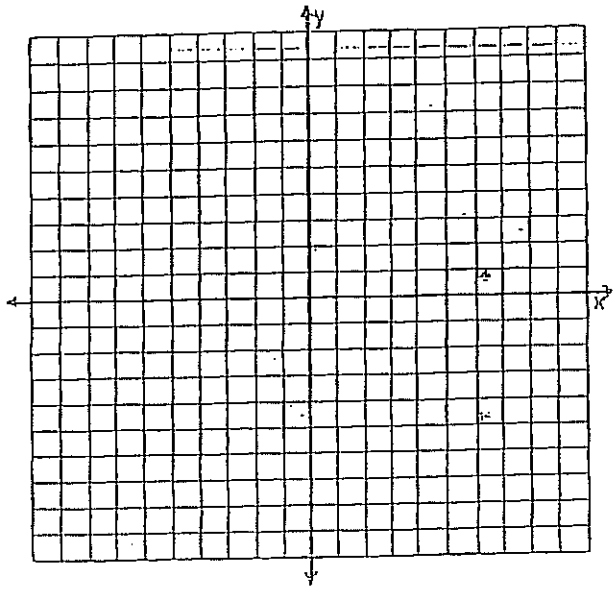
X	Y
-1	
0	
1	



Graph using intercepts

9. $3x + 8y = 24$

x-int = _____ y-int = _____

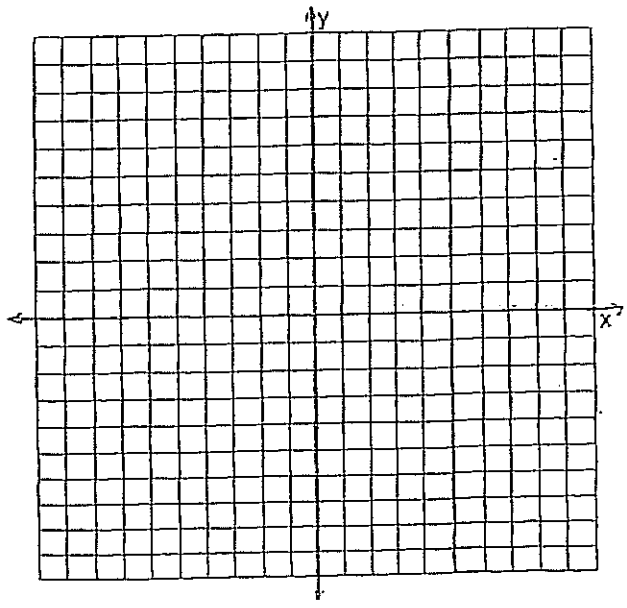


Graph using slope-intercept form

10. $y = \frac{3}{4}x - 3$

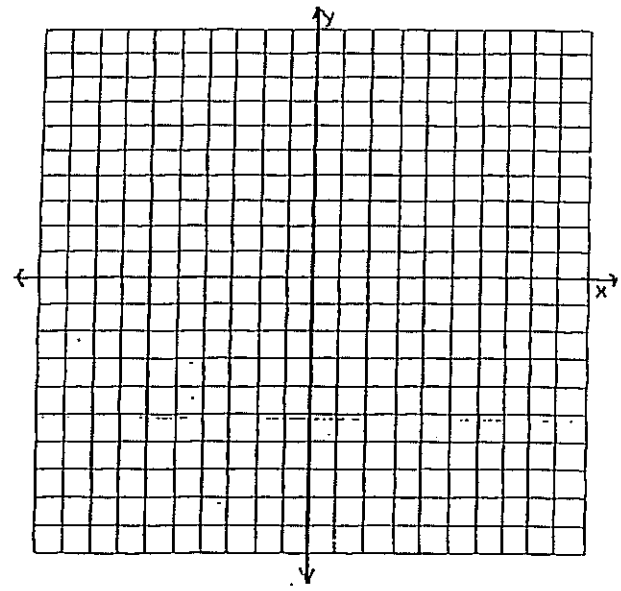
m =

b =

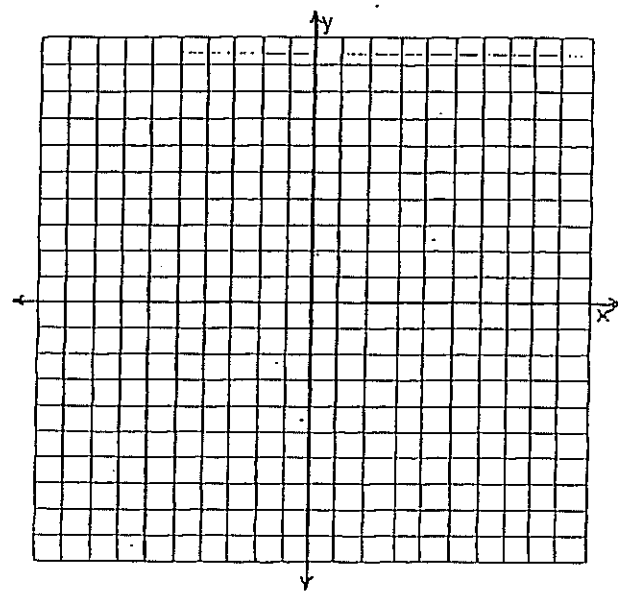


Graph the lines. Use any method that you prefer.

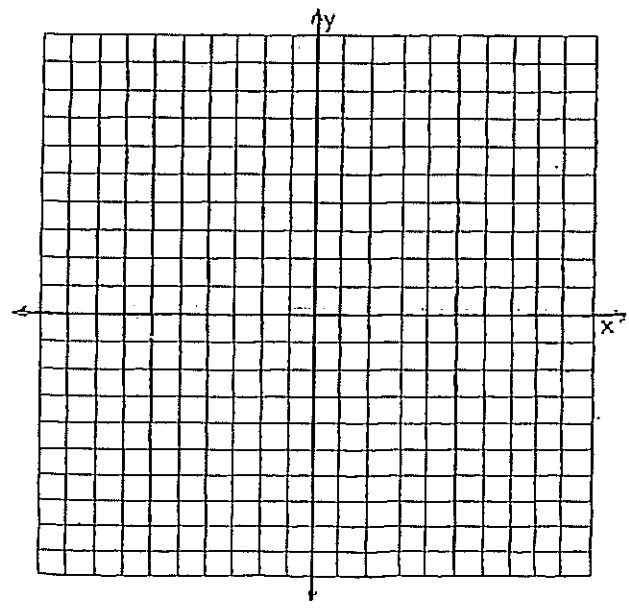
11. $4x + 2y = -2$



12. $y = -x + 3$



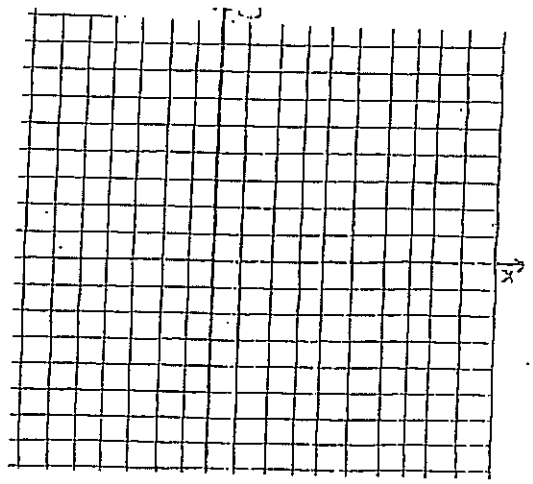
13. $y = \frac{1}{2}x + 1$



Find the slope of the line through the given points

14. (-3,0) and (-1,6)

15. (5,5) and (2,7)



16. Write the equation of the line (y = mx + b) that goes through the points (1,5) and (0,6)

17. Given the line $y = \frac{3}{5}x + \frac{7}{3}$ find the parallel slope and the perpendicular slope

Slope of original line = _____

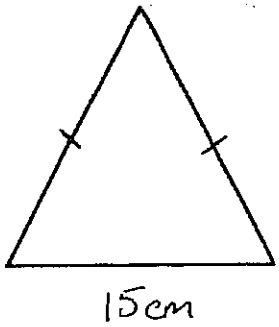
Parallel slope = _____

Perpendicular slope = _____

TEST Chapter 10 Name: _____

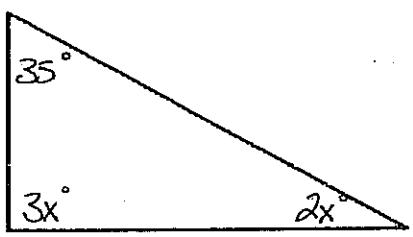
Part 1 (Lesson 10.1-10.4)

1. *Solve for x, and classify the triangle: Scalene, Isosceles, Equilateral*

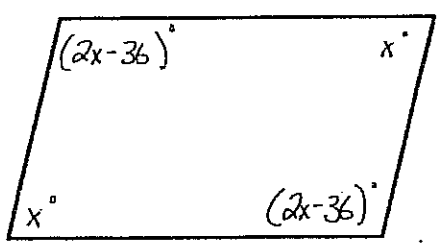


Perimeter = 25cm

2. *Solve for x, and classify the triangle: Acute, Obtuse, Right*

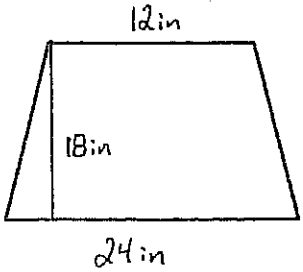


3. *Solve for x, and classify the quadrilateral: Trapezoid, Parallelogram, Rhombus, Rectangle, Square*

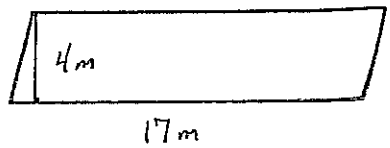


Find the AREA.

4.

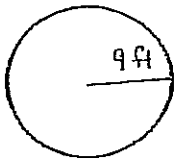


5.

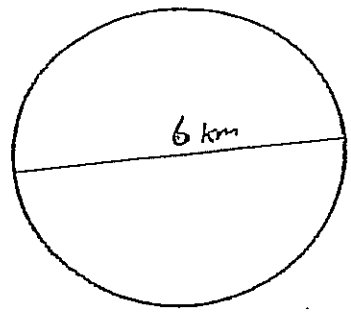


Find the AREA and CIRCUMFERENCE

6.

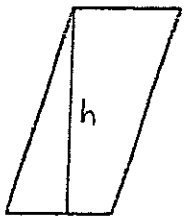


7.



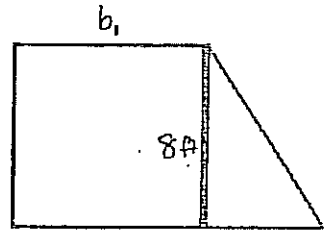
Find the unknown measure of the parallelogram, trapezoid, or circle. Round answer to nearest whole number.

8.



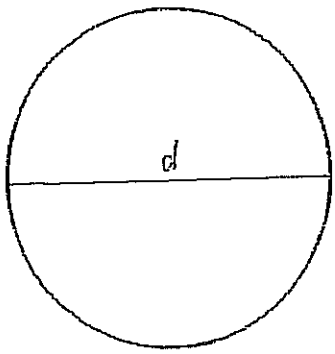
$A = 54\ cm^2$

9.



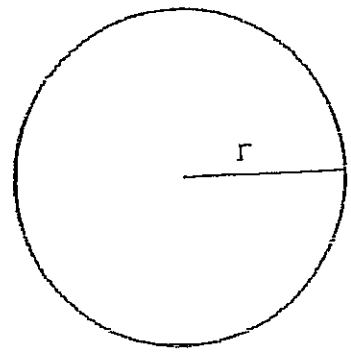
$A = 68\ ft^2$

10.



$C = 132\ mm$

11.



$A = 201\ m^2$